

REMARKS

Claims 1 and 11 have been amended to clarify the invention. Support for “outputting at least a single variable” can be found for example in Figs. 4 and 6 (the boat operation fuzzy control module outputs two variables: trim angle variation and electronic throttle opening variation), Fig. 5 (the tri control module outputs one variable: trim angle variation), and Fig. 7 (the fuzzy table’s output is one variable: electronic throttle valve opening variable).

Claim 12 has been amended to clarify the invention by deleting “based on predetermined input information.” This recitation was indefinite and not necessary for enablement of the claimed invention.

Claims 28 and 29 have been added. Support for these claims can be found for example in Figs. 6 and 7 and pages 10-11 (the parameters defining the fuzzy table are subjected to interactive evolution in Fig. 7, and the parameters defining coefficients of input and output of the control module is subjected to autonomous evolution in Fig. 6).

The amendments do not constitute the addition of any new matter to the specification. Applicant respectfully requests entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

Rejection Under 35 U.S.C. § 112

Claim 12 has been rejected under 35 U.S.C. § 112, second paragraph, with regard to the limitation “predetermined input information”. The limitation is not necessary for enablement of the claimed invention, and has been deleted, thereby obviating this rejection.

Rejection Under 35 U.S.C. § 102

Claims 1-4, 6, 9, 11, 12, 14-17, and 26 have been rejected under 35 U.S.C. § 102(b) as being anticipated by EP 0957416 (“Kamihira”). Claims 1 and 11 have been amended to clarify the invention. Applicant respectfully traverses this rejection.

The Examiner asserts:

Figs. 4 and 5 depict a control module which includes sub-modules (units) for interactive and autonomous evolution. Kamihira discloses the same fundamental relationship. (OA, paragraph 9)

However, in Claims 1 and 11 as amended herein, the control module outputs at least a single variable, the parameters of which are subjected to both autonomous and interactive evolution to optimally output the variable. In Fig. 5, the trim control module outputs a variable (trim angle variation) subject to both autonomous and interactive evolution. In Fig. 4, the boat operation fuzzy control module outputs a variable (electronic throttle valve opening variation) subject to both autonomous evolution (Fig. 6) and interactive evolution (Fig. 7). Thus, in Claims 1 and 11, the same variable is subject to both autonomous and interactive evolution. Kamihira does not disclose the same fundamental relationship as explained below. The Examiner further asserts:

Kamihira discloses that autonomous and interactive evolution may be used together in a single module (or sub-module). See paragraph 0027, "With the foregoing structure ... the evolution/adaptation layer." This is also seen in Fig. 1, which discloses the input of both a user evaluation [3] and environmental unit [2] for selective evolution of a single control module [19] under either an autonomous or interactive scheme. (OA, paragraph 9)

However, contrary to the Examiner's assertion, Kamihira does not disclose that autonomous and interactive evolution may be used together in a single module. Paragraph 0027 states "the control parameters for the control modules of the reflection layer have evolved based on at least ..." (emphasis added.) Kamihira does not state that the single control module evolves based on various criteria. In Fig. 1 of Kamihira, the reflection layer includes three control modules each outputting different variables, and the evolution/adaptation layer shows that each module is subjected to one evolutionary step (numerals 8, 9, and 10 are individuals subjected to selection, numerals 22, 23, and 24 are different individuals subjected to different selection, and numerals 33, 34, and 35 are other individuals subjected to another selection, and these individuals are not mixed between the control modules). Fig. 6 of Kamihira show two control modules: one for drivability and the other for fuel economy, each outputting a different variable. There are two separate evolutionary systems. Also see Fig. 11 of Kamihira. Fig. 12 of Kamihira shows the first control module's flow chart (the drivability module). The first control module is evaluated by a user (paragraphs 0050 and 0051). Fig. 14 of Kamihira shows the second control module's flow chart (the fuel economy module). The second control module is evaluated by a mechanical number (paragraphs 0063-0066). Thus, it is clear that Kamihira does not teach or even suggest that a variable outputted from a single control module is subject to both autonomous and interactive evolution.

Appl. No. : 09/727,424
Filed : December 1, 2000

In conclusion, because “the identical invention must be shown in as complete detail as is contained in the ... claim” (M.P.E.P. 2131), Kamihira could not anticipate Claims 1 and 11. The remaining claims are dependent ultimately either on Claims 1 or 11.

Applicant respectfully requests withdrawal of this rejection.

Rejection of Claim 5 Under 35 U.S.C. § 103

Claim 5 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamihira in view of US 5,418,721 (“Arai”). However, as described above, Kamihira does not teach that a variable outputted from a single control module is subject to both autonomous and interactive evolution, and neither does Arai. Claim 5 is dependent on Claim 1. “To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art” (M.P.E.P. 2143.03), and thus, a combination of Kamihira and Arai could not render Claim 5 obvious. Applicant respectfully requests withdrawal of this rejection.

Rejection of Claims 7, 8, and 27 Under 35 U.S.C. § 103

Claims 7, 8, and 27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamihira in view of US 5,995,737 (“Bonissone”). However, as described above, Kamihira does not teach that a variable outputted from a single control module is subject to both autonomous and interactive evolution, and neither does Bonissone. Claims 7, 8, and 27 are dependent on Claim 1. “To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art” (M.P.E.P. 2143.03), and thus, a combination of Kamihira and Bonissone could not render Claims 7, 8, and 27 obvious. Applicant respectfully requests withdrawal of this rejection.

Rejection of Claims 10 and 18-25 Under 35 U.S.C. § 103

Claims 10 and 18-25 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamihira. However, as described above, Kamihira does not teach that a variable outputted from a single control module is subject to both autonomous and interactive evolution. Claims 10 and 18-25 are dependent on Claims 1 or 11. “To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art”

Appl. No. : 09/727,424
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(M.P.E.P. 2143.03), and thus, Kamihira could not render Claims 10 and 18-25 obvious. Applicant respectfully requests withdrawal of this rejection.

New Claims 28 and 29

Claims 28 and 29 have been added. These claims recite that the parameters defining the fuzzy rules are subject to interactive evolution, and the parameters defining coefficients of input and output of the fuzzy rules are subject to autonomous evolution, to optimally output the same variable. For example, see Figs. 6 and 7 and pages 10-11 (the parameters defining the fuzzy table are subjected to interactive evolution in Fig. 7, and the parameters defining coefficients of input and output of the control module is subjected to autonomous evolution in Fig. 6). The above feature is taught by none of the prior art. It is respectfully submitted that these claims are allowable.

CONCLUSION

In light of the Applicant's amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

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By:



Katsuhiro Arai
Registration No. 43,315
Agent of Record
Customer No. 20,995
(949) 760-0404